



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/698,381

11/03/2003

Yoshikazu Fujishima

040894-5972

2727

9629 7590 03/28/2007  
MORGAN LEWIS & BOCKIUS LLP  
1111 PENNSYLVANIA AVENUE NW  
WASHINGTON, DC 20004

EXAMINER

GOMA, TAWFIK A

ART UNIT

PAPER NUMBER

2627

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

03/28/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/698,381	FUJISHIMA, YOSHIKAZU	
	<b>Examiner</b>	<b>Art Unit</b>	
	Tawfik Goma	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 12/05/2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, and 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakagami (JP 2002203359) in view of Shigetomi (JP 10-038907).

Regarding claims 1-3, Sakagami (JP 2002203359) discloses a rotary tray apparatus in which a plurality of concave/convex portions are formed on a peripheral side wall of a rotary tray in correspondence with respective positions of a plurality of disk loading portions arranged on the rotary tray (figs. 1 and 2), and identification numbers of the respective disk loading portions at a play starting position is determined based on a pulse signal being output by a light receiver that receives a light emitted from a light emitter and reflected by the concave/convex portion (4A-4D, figs. 1-2 and par. 19), the apparatus comprising: a counter configured to count, at a predetermined intervals, a numbers of L levels and H levels in one cycle of the pulse signal (9, fig. 3 and par. 16), respectively; a detecting unit configured to detect whether or not a signal of an opposite level is input during the counting of respective levels (par. 16 and 15, fig. 3); a memory configured to store previously-input counted numbers of respective levels of the pulse signals as reference values (pars. 19 and 20 and 14, fig. 3). Sakagami fails to disclose a controlling unit configured to determine the identification numbers based on a ratio between the numbers counted of the respective levels of the pulse signals, wherein the controlling unit is

Art Unit: 2627

further configured to compare a counted value of a time point when the opposite level is detected with the reference values stored in the memory, and to decide that a noise signal is superposed in the pulse signal when the counted value is out of tolerances of the reference values and initialize the counted values. In the same field of endeavor, Shigetomi discloses a motor rotation sensing device that counts HI and Lo pulses (par. 51) and a controller that uses the ratio between the numbers counted (par. 51), wherein the controlling unit is configured to decide if a noise signal is superposed in the pulse by comparing the ratio with a reference value and initializes the counted values (par. 47, par. 50 and figs. 3-4). Shigetomi further discloses wherein the predetermined values are previously measured values stored in the memory (pars. 52 and 56) It would have been obvious to one of ordinary skill in the art to modify the device disclosed by Sakagami to provide for position detection based on a ratio of counted values wherein the ratio is compared to a predetermined threshold as taught by Shigetomi. The rationale is as follows: One of ordinary skill in the art at the time of the applicant's invention would have been motivated to calculate count ratios and to compare the ratio with a predetermined threshold in order to cancel the effect that a noise or disturbance has on the count values (Shigetomi, Abstract).

Regarding claim 4, Shigetomi further discloses wherein the controlling unit is further configured to change the intervals in counting the numbers of respective levels by the counter in response to a rotation speed of the rotary tray (pars. 42-43). It would have been obvious to one of ordinary skill in the art to adjust the timing period T for counting as disclosed by Shigetomi in order to correctly detect the HI and Lo pulses with changing rotational velocities. Put in a

Art Unit: 2627

different way, if the period T is not adjusted, the device could for example not count a Hi or Lo pulse because it is calibrated for a slower rotational velocity.

Regarding claim 6, Shigetomi further discloses wherein the controlling unit determines that the concave/convex portions has a defect, when a plurality of the noise signal is detected on a same pulse signal at a time of determination of the identification numbers (par. 47, par. 50 and figs. 3 and 4).

Regarding claim 7, method claim 7 is drawn to the method of using the corresponding apparatus claimed in claims 1-3. Therefore method claim 7 corresponds to apparatus claims 1-3 and is rejected for the same reasons of obviousness as applied above.

Claims 5 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakagami (JP 2002203359) in view of Shigetomi (JP 10-038907) as applied to claims 1-4, and 6-7 above, and further in view of Kim et al (US 6603721).

Regarding claim 5, Sakagami in view of Shigetomi fail to disclose wherein the controlling unit stops the determination of the identification numbers when a rotation speed of the rotary tray is slower than a predetermined speed. In the same field of endeavor, Kim discloses wherein the controlling unit stops the determination of a disk location and calculates a delay time when the tray is rotating slower than a predetermined speed (fig. 10 and col. 7 lines 28-41). It would have been obvious to stop the determination identification numbers when the tray was rotating at a slower rate as taught by Kim. The rationale is as follows: One of ordinary skill in the art would stop the identification of the disc numbers in order to adjust for the slower speed and to accurately detect the disc location under the new conditions.

Regarding claims 8-10, Sakagami in view of Shigetomi fail to explicitly disclose detecting that the tray is rotating at a constant velocity first and then performing the count. Sakagami discloses that the length of the pulse signals in seconds is used in conjunction with the lengths stored in memory to identify the disc numbers (par. 19). In the same field of endeavor, Kim discloses rotating a tray at a constant speed prior to operation of counting the sensing ribs, and adjusting the speed to reach the constant speed (fig. 6 and col. 5 lines 63-67 thru col. 6 lines 1-20). It would have been obvious to one of ordinary skill in the art to detect the constant speed first and then begin counting. The rationale is as follows: One of ordinary skill in the art would have been motivated to detect that the tray is rotating at a constant speed in order to ensure proper counting using a clock signal with the same frequency as the reference values that are used for the comparison. If the tray is not rotated at a constant speed, the count values would be different than those stored in memory and the apparatus of Shigetomi would not function properly.

### ***Response to Arguments***

Applicant's arguments filed 12/05/2006 have been fully considered but they are not persuasive.

Regarding applicant's arguments that Shigetomi does not use the "reference values stored in memory" in order to detect a noise signal, this argument is not persuasive because Shigetomi does disclose using a reference value stored in memory (i.e. duty ratio of 50% for the H and L pulses) in order to determine if the signal has a noise signal. The duty ratio for comparison must be stored in memory in order to be used by the drive for the comparison.

Applicant argues that a duty ratio is not the same as reference values stored in memory disclosed by applicant because applicant's reference values are "counted value itself" rather than a calculated value (i.e. duty ratio). First, this argument is does not pertain to independent claim 2 which does not recite a limitation on the reference values being counted values. With respect to claim 1, which recites that "previously input counted numbers of the respective levels of the pulse signals as reference values," the argument is still not persuasive because the duty ratio used by Shigetomi as the reference value is equivalent to the method of comparison disclosed by applicant in comparing the counted values. As shown in figure 4 and pars. 59-62). Applicant discloses comparing the H levels and L levels to get a percentage and compares that percentage with 90 % stored in memory.

Finally applicant argues that Shigetomi detects rotational time periods and not identification numbers which the examiner fully agrees with, however, Sakagami discloses the detection of the identification numbers and the combination of Sakagmi and Shigetomi disclose everything claimed as discussed above.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

Art Unit: 2627

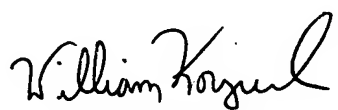
CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tawfik Goma whose telephone number is (571) 272-4206. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
T. Goma  
3/21/2007

  
WILLIAM KORZUCH  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600